

REMARKS

The Examiner has withdrawn claims 3, 4, 7, 8, 11 and 12 from consideration. Claims 1, 2, 5, 6, 9, 10 and 13 - 19 have been rejected. Applicants have amended Claims 1, 5, 9, 18 and 19. Applicants have cancelled claim 13 - 16. Thus, claims 1, 2, 5, 6, 9, 10 and 17 - 19 are pending. Favorable reconsideration is respectfully requested in light of the following Remarks. No new matter has been added.

I. Claim Objections

The Office Action objects to Claim 1 because the last lines of the claim have been amended to recite, "adapted for engagement the cylinder head."

Applicants have amended Claim 1 to show clarification in the use of "engagement" to read "adapted for engagement with the cylinder head." Claims 18 and 19 have been amended to include the missing word "seal" in the preamble. Applicants respectfully submit that Claim 1 is in allowable form. Withdrawal of the objection is respectfully requested.

II. Claim Rejections - 35 USC § 102

Claims 1, 2, 13, 14, 16 and 17 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,119,645 to Heshner ("Heshner"). Claims 13 - 16 were canceled. The rejection of claims 1, 2 and 17 is respectfully traversed.

The Office Action states that Heshner discloses "*a valve stem seal anti-rotation assembly comprising an elastomeric seal body (40) and a cylindrical retainer (42) defining a longitudinal axis, said retainer comprising an upper end portion that circumferentially supports said seal body (see Fig. 4); said elastomeric seal body comprising an annular valve stem seal adapted for sealingly engaging a reciprocally movable valve stem (32); said cylindrical retainer further comprising a lower extremity defining a radially outwardly extending spring seat flange (44) including a radially extending bottom surface adapted to bear against a cylinder head deck (24), wherein said bottom surface comprises at least one protrusion (72) extending axially downwardly therefrom and adapted for engagement with at least one depression (76) in the cylinder head deck that corresponds to said protrusion; wherein said protrusion on said bottom*

surface of said spring seat flange that engages said depression is adapted to resist torque forces applied to said spring seat flange by mechanical vibrations.” (See Office Action at pages 3 and 4 item 5).

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."¹ "The identical invention must be shown in as complete detail as is contained in the ... claim."² Regarding Claims 1, 2 and 17, Heshner discloses "a cut in the flange forming two opposing free edges; said first free edge being bent in a generally longitudinal first direction to form a first tab for engaging the surface of the engine head, said second free edge being bent in a generally longitudinal second direction to form a second tab for engaging at least one coil of a valve spring." See, for example, column 5, lines 27 - 33.

The Heshner patent is owned by the same assignee as the present invention. Heshner discloses a flange seat that includes a radial cut 60 in the flange. Using the radial cut, two opposing free edges 64, 66 are then formed. (Col. 3, lines 42 - 46). One of the free edges is selectively received within a void 76 cast into an upper surface of the engine head 24. (Col. 3, line 67 - Col. 4, line 1)

Each of the independent claims, namely claims 1, 5 and 9, have been amended to recite that the spring seat flange includes a radially extending uninterrupted circumferential bottom surface adapted to bear against a cylinder head deck, as shown, for example, in Figure 2. The claimed invention provides a continuous positive, mechanical anchor for resisting torque applied to the spring seat flange via rotation induced by mechanical engine vibrations. In contrast, Heshner discloses "a cut in the flange" that may: (1) undesirably deform the two opposing free edges under torque loads particularly induced by engine vibrations; (2) result in the free end vibrating out of the void 76 subjecting the valve assembly to undesired rotation and the resulting scouring or other damage to the surface 34 as discussed in [0020]; and (3) allow the spring to vibrate away from the free edge designed to prevent undesired rotation of the valve assembly.

In view of the amendment to claim 1 and the advantages it provides over the teachings of Heshner, it is respectfully submitted that claim 1 is now in condition for allowance. Claims 2 and 17, which depend from Claim 1 are also allowable over the applied art. Withdrawal of the rejection is respectfully requested.

III. Claim Rejections – 35 USC § 103

The Office Action rejects Claims 15, 18 and 19 under 35 U.S.C. §103(a) as being unpatentable over Heshner as applied to claims 14 and 17, and further in view of DeBolt (US Patent Number 4,470,383). The Office Action also rejects Claims 5, 6, 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Heshner in view of DeBolt. The rejections are respectfully traversed.

The Office Action states that “*Heshner discloses the sharp edge of the protrusion seating in a preformed depression in the deck rather than having the protrusion being adapted to “bite” the deck to create the depression. DeBolt discloses a similar anti-rotation valve stem seal that has protrusions (40) on the flange of the spring retainer, wherein the protrusions create depressions (indentations) that the protrusions sit in to prevent undesirable rotation (see column 4, lines 9-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the sharp edge of the protrusion of Heshner to create the depression in a similar manner as taught by DeBolt in order to allow the depressions to be formed on various surfaces as taught by DeBolt.*” (See Office Action at pages 4 and 5 item 7).

The Office Action also states that “*DeBolt discloses a similar anti-rotation valve stem seal that has protrusions (40) on the flange of the spring retainer, wherein the protrusions create depressions (indentations) that the protrusions sit in to prevent undesirable rotation (see column 4, lines 9-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the sharp edge of the protrusion of Heshner to create the depression in a similar manner as taught by DeBolt in order to allow the depressions to be formed on various surfaces as taught by DeBolt.*” (see Office Action at pages 4 and 5 item 7).

¹ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

² *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.³

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.⁴ "In determining whether the invention as a whole would have been obvious under section 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question . . . but also those properties of the subject matter that are inherent in the subject matter and are disclosed in the specification . . . Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention as a whole, and not some part of it, which must be obvious under section 103."⁵

As noted above, each of the independent claims has been amended to include the limitation of the seat flange including a radially extending uninterrupted circumferential bottom surface. As a result of the amendments made, each of the claims is patentably distinct from Heshner for the reasons discussed above. The specifications and claims of Heshner and DeBolt do not recite or contemplate placing at least one protrusion at the *uninterrupted circumferential bottom surface* of a flange seat adapted for engagement with at least one depression.

With respect to the use of DeBolt, DeBolt does not teach "*depressions to be formed on various surfaces*" as the Office Action suggests (see Office Action at page 5, line 4). The Office Action asserts that "*DeBolt discloses a similar anti-rotation valve stem seal that has a protrusion (40) on the flange of the spring retainer.*" See Office Action page 5, lines 21 and 22. In fact, DeBolt does not disclose a flange but a "cup-shaped configuration . . . terminating in a plurality of spaced apart radial load carrying feet . . . with a semi-spherical embossment." See

³ *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

⁴ *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983)

⁵ *In re Antonie*, 559 F.2d 618, 195 USPQ 6,8 (CCPA 1977)

DeBolt, column 1, lines 53 - 59. DeBolt's semi-spherical embossments on load carrying feet are distinctly different than a flange including a radially extending uninterrupted circumferential bottom surface. DeBolt also discloses that the semi-spherical embossments form "peen type indentations in said support surface." See DeBolt, column 6, lines 6 and 7. These indentations are designed to create a frictional surface for the embossments and not a structural depression for resisting the torque applied to the spring. This frictional surface does not prevent rotation of the valve spring induced by mechanical engine vibrations and therefore does not provide the positive mechanical anchor of the present invention.

For at least these reasons, Claims 5, 6, 9, 10 and 17 - 19 are allowable over the applied art, taken singularly or in combination. Claims 14 and 15 have been canceled. Withdrawal of the rejection and objection is respectfully requested.

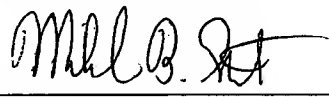
IV. Conclusion

In view of the above, each of the presently pending claims in this application is believed to be in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. 60680-1489 from which the undersigned is authorized to draw.

Dated: January 5, 2003

Respectfully submitted,

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